Timber Estimation Shortcuts

Tennessee Department of Agriculture, Division of Forestry

Basal area/acre (combined surface of the imaginary 4.5' tall "stumps" of merchantable trees) can be estimated by holding a penny at eye level 25 inches from the eye and turning slowly in a circle. If the penny appears wider than a tree trunk, don't tally that tree. If the penny appears to fit between the edges of the trunk, count the tree. Each counted tree represents 10 square feet of basal area, no matter how large or small the tree is. The penny is a cheap substitute for a 10 Basal Area Factor (BAF) prism. (see below)

To estimate the **board foot volume** of sawtimber multiply the **number of 16' logs** counted per 10 BAF prism point times **400** (Doyle rule) or by **600** (International rule.)

To estimate **hardwood pulpwood** in **cords per acre,** multiply the number of **4' sticks** counted per 10 BAF point by **.3**

To estimate hardwood pulpwood in **tons,** multiply the .number of 4' sticks by **.9.** (Or easier, *number of sticks minus 1/10 the number of sticks.)*

To estimate **pine** pulpwood in **cords** per acre: **½ average tree height** X **counted trees** per plot, **divided by ten.**

To estimate pine in **tons** per acre, multiply average **height** times **basal area** times **.013.**

Conversion factors (close approximations)

A **cord of hardwood** weighs **2.9** tons.
A **cord of pine** weighs **2.675** tons.

To convert board foot volume International Rule to Doyle Rule: divide International by 1.32

To convert Cedar Rule (2/3) to Doyle Rule: divide by 1.33

To convert tons of merchantable logs to volume Doyle Rule:

      Hardwood = 9 tons/MBF
      Pine =7 ½ tons/MBF
      Cedar = 7.32 tons/MBF Doyle,
            5 ½ tons/MBF Cedar Rule

There are 6.04 BF in one cubic foot of wood

Compound interest

♦ Years needed to double value = 72/interest rate

♦ Interest rate needed to double money in X years = 72/X

Squaring numbers

Many times you need to square a number quickly in your head, such as when estimating the Doyle volume of a log:

$$V = (D-4)^2 \text{ (length)}/16.$$

To square a number, subtract to get a number ending in 0. Then add the same amount to the number you are squaring. Multiply these two together, then add the square of the number you subtracted (and added on.) Example: $23^2 = (23-3)(23+3)(3 \times 3) = 20 \times 26 + 9 = 529$.

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